



December 21, 2022

California Air Resources Board
1001 I Street
Sacramento, CA 95815

Re: Low Carbon Fuel Standard (LCFS) – Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard

Dear California Air Resources Board and Staff,

Recover Inc. (RECOVER) appreciates the opportunity to provide comments on the potential future changes to the LCFS program. As a company focused on reducing the carbon intensity of fuels, we are a strong supporter of the LCFS program and the state's efforts to achieve carbon neutrality by 2045.

RECOVER is a leading technology company focused on the recovery and recycling of oil and natural gas waste, significantly reducing greenhouse gas (GHG) emissions and the carbon intensity of transportation fuel. Founded over fifteen years ago, RECOVER employs a solvent extraction technology that was adapted from numerous other applications (such as food grade oils) and tailored to process oil and natural gas waste streams. Currently, this hydrocarbon waste is sent to uncovered solid oil and gas waste disposal facilities in California and across the United States, which rapidly evaporates and biodegrades into the atmosphere and releases GHG and other harmful emissions. RECOVER currently operates its commercial demonstration facility in Alberta, Canada and has partnered with a large industrial waste company in North America to build waste-to-energy facilities directly on its uncovered solid oil and gas waste disposal facilities. To date, RECOVER has identified twenty expansion sites across the United States, including California.

As a follow up to ARB's most recent LCFS workshop and presentation on preliminary design scenarios, we support Alternative C, which would achieve a 35% CI reduction by 2030, and support the state's projected investments in alternative fuel deployments before 2030. This scenario will achieve the program's long-term goals while also supporting continued biofuel production and deployment, including an ultimate goal of 90% CI reduction by 2045 as outlined in the Final 2022 Scoping Plan.

In addition to consideration of the preliminary design scenarios, RECOVER supports inclusion of recycled fuel from oil and natural gas waste. Hydrocarbon waste is a major problem in California and beyond. This includes drilling waste, tank bottoms, and oil spills/contaminated soils that are all sent to uncovered solid oil and gas waste disposal facilities that do not have methane capture systems. These hydrocarbon waste streams biodegrade rapidly and emit up to 18 million metric tons of GHG emissions annually, as well as release toxic airborne contaminants that impact local communities living near these uncovered solid oil and gas waste disposal facilities. There is also risk of the waste leaking into the local environment and contaminating soils and groundwater supplies. This is especially concerning, as many of these uncovered solid oil and gas waste disposal facilities and active oil and natural gas development areas are often located near or adjacent to disadvantaged communities.



Within the LCFS program, there is an opportunity to incentivize recovering and recycling hydrocarbon waste to mitigate these emissions and negative environmental impacts to California's disadvantaged communities. RECOVER's solvent extraction technology recycles the carbon from the oil and natural gas waste, producing a new diesel product that avoids ~345g gCO_{2e} of emissions per MJ of created energy.

Specifically, given the avoidable emissions presently occurring at uncovered solid oil and gas waste disposal facilities, RECOVER proposes CARB consider a new and innovative method within the Innovative Crude regulations for the recycling and extraction of hydrocarbons from existing uncovered solid oil and gas waste disposal facilities to avoid both the GHG emissions and other negative externalities to disadvantaged communities across the United States. Including hydrocarbon solvent extraction from oil and natural gas waste in the LCFS Program will create the incentive needed to address the significant GHG emissions emitted from disposing hydrocarbon waste in uncovered solid oil and gas waste disposal facilities. Additionally, this will help reduce the carbon intensity of fuels in California and carryout key actions from the Final 2022 Scoping Plan, including within the Low Carbon Fuels and Improvements to Oil and Gas Facilities.

As follow up to an October 14th meeting with LCFS Program Staff, RECOVER recently submitted 1) a letter to ARB outlining items from the meeting 2) potential rule language that could be implemented within the regulation, and 3) a Tier 1 OW Calculator GREET model modified for recovered oil and gas waste streams to quantify the avoided GHG emissions of hydrocarbon recycling. We look forward to continued discussions and follow up meetings with program staff in the new year.

We appreciate the opportunity to provide comments on the potential changes to the LCFS program and the ability to work with CARB staff during the process. We look forward to working together to reduce carbon emissions in transportation fuels and help avoid these exposures to sensitive receptors in vulnerable communities in California and beyond.

Kind regards,

A handwritten signature in blue ink, appearing to read "Stan Ross".

Stanley Ross - President & CEO
Recover Inc.